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## CIRAS News (Vol. 37, No. 2)

Iowa State University Center for Industrial Research and Service

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## Governor endorses bioeconomy ideas unveiled at IIOF symposium

By Tim Sullivan, CIRAS



*Governor Vilsack addresses participants at the IIOF Symposium*

**W**e need to place a very targeted focus on the bioeconomy” was one of many key statements made by Governor Tom Vilsack as he summed up the theme of presentations made at the Iowa Industries of the Future (IIOF) Biobased Products and Bioenergy Symposium held September 4, 2002, in Ames. The event was sponsored by the U.S. Department of Energy, Iowa State University Extension, the Iowa Energy Center, the Biorenewable Resources Consortium, and the Iowa Department of Natural Resources.

Over 350 industry leaders, agricultural producers, economic developers, researchers, and legislators representing 15 different states attended the symposium to learn more about developing a bioeconomy—an economy that uses Iowa’s abundant plant/crop-based resources in the production of chemicals, fuels, and industrial and commercial goods. In addition to Vilsack, other public officials attending the event included Denise Swink from the U.S. Department of Energy and Lloyd Ritter, majority counsel for the Senate Agriculture Committee.

Vilsack’s speech at the close of the symposium called attention to Iowa’s position as a front-runner in the nation’s new bioeconomy. He noted

the steady rise in Iowa’s ethanol production and utilization capabilities and envisaged a similar role for soy diesel in the future. “We shouldn’t be dependent on foreign oil; we should grow our own,” he added, referring to the steady increase in ethanol and biodiesel plants across Iowa. Iowa businesses and its bioeconomic industries need an aggressive reinvestment plan, emphasized Vilsack, as he laid out key directions that he hopes the state would take in the future. They include

- marketing Iowa as a bioeconomy state
- continuing the pursuit of new ideas and research
- developing active business-retention programs
- re-formulating old economic rules to better suit the needs of a bioeconomy

IIOF symposium supporters and organizers felt the governor’s speech provided a welcome impetus that would help nudge bioeconomy issues into the mainstream of policy decision-making and implementation. “Participants in the symposium expressed hope that the bioeconomy will provide new opportunities for Iowa producers, industries, and investors,” remarked Jill Euken, IIOF agriculture team leader. “Additionally, they expressed a willingness to invest time, energy, and money in building biobased industries in Iowa,” she added.

Meanwhile, symposium speakers from existing biobased industries, such as Genencor International, Alliant Energy, Creative Composites, Iowa Corn Growers, and Cargill Dow, scrutinized the several challenges and opportunities that Iowa continues to face in building new biobased industries. These include ways to encourage partnerships between biobased industries and research labs, government policies in subsidies and incentives,

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*The mission of CIRAS is to enhance the performance of Iowa industry and associated entities through education and technology-based services.*

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# Niche market and quality focus spell success

By Merle Pochop, CIRAS

Veridian Ltd. is a company new to Iowa. An established manufacturer of firefighters' safety equipment, Veridian had previously operated from Danville, Kentucky. In August 2000, it moved to Iowa shortly after its president, Bill Van Lent, purchased the company from previous owners. A Nebraska native, Lent relocated to Iowa to be closer to his new company as well as to take advantage of the workforce availability and facilities in the state.

Currently, the company's sales and marketing headquarters is in Des Moines. All its manufacturing operations, however, are conducted in Spencer, chosen specifically because of the availability of an Aalfs facility, once a former contract manufacturer of denim apparel. Veridian plans to consolidate all its company operations in Spencer in the near future.

Veridian's principal product is personal protective equipment (PPE) for firefighters. These include complex arrangements of coats, pants, and liners with pockets or attachment points for accessories, such as radios and other emergency gear. The company also provides ancillary safety equipment in helmets, gloves, goggles, and boots.

Customers for this type of PPE gear include fire departments, a part of nearly every city or municipality in the country. Since each purchasing entity is independent and buys to a specification, each firefighter's suit is likely to be unique in some way to that governmental unit. Suits are also tailored to fit individual requirements on the team, so potentially an order for twenty suits could involve twenty different sizes, each of which must be cut and sewn separately!

Firefighting gear is made from high performance materials. Each component is selected for safety and durability considerations, and manufacturing methods used are critical. For these reasons, operators are very highly trained and must display a broad range of skills beyond that of sewing.

All these requirements make for complex operational procedures. In particular, controlling the configuration of an endless stream of changes poses a problem for all the suppliers in this industry. It is for this reason then that the National Fire Protection Association (NFPA) decided that all participating companies needed to become ISO 9001 certified by March 2001.

To comply with NFPA recommendations, Veridian engaged the services of the consulting branch of BVQI, an international firm certified as an ISO registrar. BVQI assists companies in creating documentation and records to meet ISO requirements. Once certified, however, each company would be responsible for maintaining and improving its own ISO 9001 system. This would mean, among other things, conducting internal audits to verify the continued effectiveness of the ISO system.

The auditing responsibility was originally assigned to quality and design coordinator Gretchen McGinnis.

However, McGinnis held many other responsibilities, including product design and process improvement. Since ISO prohibits parties from auditing themselves, maintaining the integrity of the audit presented a problem for the company. This included establishing and maintaining the skills needed to effectively investigate Veridian's quality system. To resolve this impasse, Van Lent began searching for ISO assistance, at which point he came into contact with CIRAS.

Van Lent met with Merle Pochop, CIRAS representative in northwest Iowa. Pochop's expertise is in manufacturing operations with experience in the ISO 9000 method. During the initial meeting, it was decided that

CIRAS would provide Veridian with ISO audit services on an extended basis. Pochop agreed to periodically conduct audits of Veridian's ISO system as a way to ensure that the company's operations would be audited each year.

Currently, since Pochop is independent of Veridian, the company can be assured that no part of its operations is being exempt from examination. At the same time, the company is gaining knowledge of the audit process through McGinnis, who accompanies all audits in order to learn techniques and gain first-hand knowledge of any issues that need attention.

The audit services arrangement has been in operation for about a year now, and according to McGinnis, the results so far have been positive: "We believe that having an experienced outside auditor brings us up to speed quickly on the effectiveness of auditing," cites McGinnis.



*Dedicated employees like Susan Ferguson take pride in their work. Their quality workmanship can save lives.*

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## Spring courses cover engineering and statistics

By Rebecca Kellogg, EDE

Engineering Distance Education will once again offer a broad range of quality courses this spring semester, beginning January 13, 2003. Off-campus students can take these courses using the Internet (video streaming or downloadable), videotape, or CD.

### Electrical and Computer Engineering

- **Optical Communication Networks.** *Instructor: Dr. Ahmed Kamal.* Students will learn the basics of optical communications networks, including enabling technology, as well as network architectures and protocols. Optical components and interfaces, optical transmission and reception techniques, the concept of wavelength division multiplexing, network architectures for first generation, and single and multi-hop optical networks will be studied. The linear light wave networks concept will also be briefly presented.
- **Embedded Computer Systems.** *Instructor: Dr. Diane Rover.* This course will focus on a system-level design of embedded systems covering topics such as hardware/software systems and co-design; models of computation for embedded systems; modeling, specification, synthesis, and verification; hardware/software implementation; performance analysis and optimization; and design methodologies and tools.
- **Modern Control Systems II.** *Instructor: Dr. Degang Chen.* Well-posedness of nonlinear control systems, approximate analysis methods, the Poincaré perturbation method, describing function method, Lyapunov stability theory, absolute stability of feedback systems, input-output stability, and large-scale systems will be addressed in this course.
- **VLSI Communication Circuits.** *Instructors: Dr. Julie Dickerson and Dr. Robert Weber.* The content will cover phase-locked loops, frequency synthesizers, clock and data recovery circuits, theory and implementation of adaptive filters, low-noise amplifiers, mixers, power amplifiers, transmitters, and receiver architectures.

Two courses that are part of the Power Systems Graduate Certificate will also be offered this spring:

- **Power Systems Dynamics.** *Instructor: Dr. Jim McCalley.* This course will cover power flow, economic dispatch, unit commitment, automatic generation control, sparse matrix techniques, interconnected operation, and voltage control.
- **Power Systems Voltage Security Assessment and Control.** *Instructor: Dr. Venkataramana Ajjarapu.* The course will look at load modeling, voltage security analysis methods, voltage security limited available transfer capability, preventative and corrective control measures, and on-line voltage security assessment requirements.

### Industrial and Manufacturing Systems Engineering

- **Requirements Engineering.** *Instructor: Dr. John Jackman.* This graduate-level course will cover the principles and practices of developing requirements for product development such as requirements analysis, development process and elicitation, as well as validation techniques.
- **Production Scheduling.** *Instructor: Dr. Siggi Olafsson.* The goal of this graduate-level course is to provide students with a solid background in models and scheduling techniques useful in both manufacturing and service industries. The course will place these tools within the context of modern enterprise-wide information systems such as enterprise resource planning (ERP) systems, inventory management, product and process design, product costing, and supply-chain management.
- **Applied Systems Engineering.** *Instructor: Dr. Doug Gemmill.* This course will address topics on design for reliability, maintainability, usability, supportability, producibility, disposability, and life-cycle costs in the systems engineering process.
- **Manufacturing Systems Modeling.** *Instructor: Dr. Doug Gemmill.* While gaining an introduction to analysis, simulation, and physical models of manufacturing systems, students will learn to model material handling systems, inventory systems, and production systems for performance analysis.
- **Computer Graphics and Geometric Modeling.** *Instructor: Dr. Adrian Sannier.* This course will give students a working knowledge of the basic principles of graphics programming and the modeling of geometry. Using OpenGL as the programming platform, students will develop a series of programs that display and animate computer-generated models. After completing the course, students will have developed sufficient background to quickly learn additional graphics techniques.

### Information Assurance Graduate Certificate

- **Information Warfare.** *Instructor: Dr. Doug Jacobson.* Computer system and network security, including implementation, configuration, testing of security software and hardware, and network monitoring will be covered in this course. It will also address authentication, firewalls, vulnerabilities, exploits, and countermeasures.

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## PRO-Net and CCR combine for easier access

By Kathy Bryan, IPOC

By making changes in how the Procurement Marketing and Access Network (PRO-Net) database works, the U.S. Small Business Administration (SBA) is simplifying the way small businesses do business with the federal government.

SBA has partnered with the U.S. Department of Defense (DOD) and the defense e-business program office to integrate PRO-Net and the Central Contractor Registration (CCR) system. The move, which took place on October 31, 2002, will help advance President Bush's goal of establishing a single, user-friendly, integrated acquisition environment. Combining the two databases eliminates the need for small businesses to register at two different Web sites.

By Fall 2003, vendor payments from all federal agencies will be made through the electronic funds transfer (EFT) information contained in CCR. All firms doing business transactions with the federal government will have to be registered with CCR in order to receive payment.

The PRO-Net system will continue to serve as a major marketing developmental tool for small businesses seeking to interact with the federal government and prime contractors. It will also remain an important marketing research tool for government contracting officers and commercial buyers in search of small business sources.

Finally, PRO-Net will still be the authoritative source for certification information for 8(a) business development

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## Business, Breakfast, and More

Network with small business owners, corporate buyers, and potential clients; establish contacts with federal and state area representatives; and visit with local business service programs that can assist in business growth at these events.

The 2003 breakfast dates are January 9, March 6, May 1, July 10 (Annual Business Showcase), September 4, and November 6. The breakfasts will begin at 7:30 a.m. at the Des Moines Downtown Holiday Inn, 1050 Sixth Avenue.

The facilitator for these events is Ted Williams, CEO of the Williams Group, Inc., Des Moines, Iowa. Business, Breakfast, and More is sponsored by Channell Construction Iowa & Nebraska, Principal Financial Group, and the Minority & Women Business Conference & Expo and is in cooperation with IPOC/ CIRAS and Drake Small Business Development Center.

## October IPOC workshops



Participants at the Spencer workshop share notes.

Two workshops on how to market to the federal government and on bid preparation were held at the Drake Law Clinic in Des Moines and the Clay County ISU Extension Office in Spencer. Presenters were IPOC Program Manager Bruce Coney; Dawnelle Conley from the U.S. Small Business Administration; Sherry Shafer, director of the Drake Small Business Development Center; and Ann Lohman, director of Clay County ISU Extension Education.

## IPOC client on fastest-growing companies list

Progressive Designs, L.C., a graphic design and marketing firm based in Des Moines, has been named one of America's 500 fastest-growing small businesses by *Inc. Magazine*. Progressive Designs was rated #273.

The list was started in 1982 and ranks small businesses according to their sales growth. This was Progressive Designs' first *Inc.* 500 nomination and also the company's first time on the list. Progressive Designs is a multi-channel marketing firm specializing in project/sales coordination, graphic design, copywriting/editing, digital photography, and private label packaging. It also assists its partners in the distribution and storage of printed collateral.

For the past eight years, Progressive Designs has helped many local, national, international, and federal businesses accomplish goals in multi-channel marketing. It has also assisted several businesses in branding their companies to meet the specific needs of their target audiences.

Started by Mark Burrell in 1994, Progressive Designs is one of the top marketing and design firms in the Midwest. Burrell is a CIRAS advisory council member. Progressive Designs is located at 2928 Ingersoll Avenue in Des Moines.

Further information about the company can be found on their Web site at [www.progressivedesigns.com](http://www.progressivedesigns.com) or by calling 515-288-7766.

## CIRAS in the making

*This issue marks the first of four special CIRAS newsletters that will commemorate, through timelines and special articles, 40 years of CIRAS service to Iowa industry.*

*CIRAS has come a long way from just four field staff providing advice and referrals to manufacturers in 99 counties to the mix of students, staff, and faculty today offering technical assistance, educational seminars, distance education courses, and management of joint university-government-industry-applied research projects.*

Although manufacturing and business practices have changed dramatically in the four decades since CIRAS first opened its doors in 1963, the CIRAS mission has remained constant, namely enhance the performance of Iowa industry through education and technology-based services.

CIRAS' history is closely tied to Iowa State University's land-grant mission that stresses the importance of sharing knowledge as a way to improve the lives of Iowans. CIRAS owes its existence to a rich legacy of pivotal legislative acts and individual initiatives, some of which are highlighted below.

- The Hatch Act in 1887 led to the creation of the Iowa Agriculture and Home Economics Experiment Station in 1888.
- The nation's first county cooperative farm was established in 1903. Perry Holden, an Iowa businessman and first director of the new Department of Extension, initiated extension programs that served as national models.
- The Engineering Experiment Station was established in 1904 by Anson Marston, Iowa State's first engineering dean. He laid the foundation for technology transfer of faculty research.

- The Smith-Lever Act in 1914 led to the establishment of the Cooperative Extension Services.

The purpose of the Cooperative Extension Services was to disseminate "useful and practical information on subjects related to agriculture and home economics, and to encourage the application of the same." In the early 60s, however, manufacturing began to gain a stronghold in the state's economy. Industry routinely approached ISU for help, but there was no centralized unit that could serve as a resource center to address manufacturing and managerial issues on a sustained basis. It was at this point in 1962 that Engineering Dean George Town, under direction from the college's advisory council, worked to develop and promote a model for CIRAS.

In July 1963, the Iowa Legislature appropriated funds and authorized the Board of Regents to establish CIRAS. This new unit would counsel industry, advise on appropriate procedures for growth, and conduct research and testing programs where necessary.

Today, Iowa is home to almost 6,000 manufacturing establishments, and CIRAS continues to serve as a vital resource on technology and management issues for Iowa manufacturers.



**1962**

- George Town, ISU engineering dean, proposes model for CIRAS

**1963**

- is established by Iowa Legislature



- names Waldo Wegner, professional civil engineer and first ISU basketball All-American, as director

**1964**

- launches its outreach mission for Iowa manufacturers by appointing four field staff

**1965**

- is selected to administer the federal State Technical Services Act, linking federal government research to Iowa business and industry

**1966**

- becomes part of ISU Extension
- prints first issue of CIRAS News

**1967**

- hosts the Iowa plastics conference for the first time with ISU and Engineering Extension Services

**1963-1972**  
**CIRAS**  
Through the years

# Perseverance and CIRAS ties mark Donco growth

By Sunanda Vittal, Engineering Communications and Marketing

When Larry Raymon joined Donco Air Products in 1979 as owner and general manager, he knew he had his work cut out for him. Donco, based in Eldora, Iowa, hovered at the brink of bankruptcy and foreclosure, debt was high and sales low, and the company had gained a reputation for poor quality and customer service.

Today, 23 years later, Donco stands tall, commanding respect and recognition as a premier manufacturer and international distributor of air diffusers for commercial buildings. In 2000, sales surpassed \$5 million, and although a slow economy has impacted company sales and workforce recently, Donco continues to forge ahead with creative strategies and solutions accumulated through past experiences.

"We are not discouraged," remarks Raymon confidently, as he reflects on the downturn. "We've also had a long history of steady growth," he adds. This growth was perhaps most significant the first three years when Raymon assumed responsibility for reviving the company. Thanks to a stringent recovery plan that focused on streamlining production and carving a niche market, coupled with strong employee work ethic and support from units like CIRAS and the local chapter of the United Sheet Metal Workers, Donco stepped back from the edge and into sustained growth and profitability. During this time, Raymon recalls, "CIRAS evaluated my company and played the role of a security blanket. It offered tips, training seminars, and encouragement."

Currently, Raymon is a CIRAS advisory council member, a position he has also held in the past. His close association with CIRAS through the years has convinced him that start-up companies and manufacturers should take advantage of networking opportunities available through CIRAS, "which offers access to current trends and technical information that may be difficult to obtain in other ways," stresses Raymon.

At present, Raymon is following up on his own advice by once again enlisting CIRAS services in testing a new Donco product introduced in 2000. Through advanced visualization techniques, CIRAS staff and ISU aerospace engineering faculty Frederick Haan are helping Donco



Donco manufactures and distributes air diffusers for commercial buildings.

enhance the capabilities of the innovative product. The company also hopes to use the technology as a marketing tool to attract potential buyers.

A slow economy, reflects Raymon, is an ideal time to engage in product enhancement activities. "Our challenge is to take advantage of this downturn by working on product development, improving plant efficiencies, and focusing on marketing strategies to make us stronger when the economy picks up," says Raymon.

The company operates under a fundamental philosophy: "We must re-earn your trust each day and will do 'whatever it takes' to help our customers with their needs." As a result, manufacturing guidelines stress individualized service. Since the company doesn't keep inventories, each order is completed to meet specific client needs. In turn, this helps Donco respond swiftly to a customer's request.

Catering to employee well-being is yet another top priority for Donco. The management has worked hard to create an employee-friendly environment implicit in its state-of-the-art factory facility with a unique convention center-like ambiance and its own private art gallery.

As for companies currently struggling as Donco was over two decades ago and striving to be successful, Raymon offers simple advice: Be persistent, remain honest, and make use of the resources around you. "If companies are honest and strive towards a high level of integrity, they can always benefit from a meaningful dialogue with resources such as CIRAS."

## 1967

- develops the Selective Dissemination of Information program, a computer-generated information retrieval system for Iowa manufacturers

## 1968

- assists the Iowa division of the United Nations Association in recruiting Iowa experts for UN posts

## 1969

- organizes statewide marketing workshops to help companies plan and execute marketing programs

## 1970

- sets up Product Program to help Iowa manufacturers locate and review new products

## 1971

- alerts Iowa companies about new OSHA standards

## 1969

- sets the stage for "high-tech" era of distance education by offering videotaped courses to over 100 off-campus students, including industry engineers

- publishes recruiting guide for Iowa businesses and industry to help meet their employment needs

- introduces one-day seminars to familiarize Iowa industry with campus resources

## 1972

- connects manufacturers with university testing equipment available through the Materials Analysis Lab at ISU's Engineering Research Institute (ERI)

- works with Department of Defense to set up a professional development service program of trained analysts who consult with architectural and engineering firms on fallout protection issues



# CIRAS repeats success at NAMTAC



*The NAMTAC Award team—from left to right, front row: Nick Burns, industrial engineering; Mike Larson, mechanical engineering; John Roberts, CIRAS. Back row: Jeff Mohr, CIRAS; Travis Johnson, mechanical engineering; Steven Devlin, CIRAS; Don Eichner, CIRAS (retired); Brennan Fehr, mechanical engineering.*

*Students (not pictured): Mike Taylor (BSME'01), Jason Reber (BSIE'02), Curt McFadden (BSME'02), Jhonson Sahlan (BSIE'02), Steve Frankeberger (BSEE'02).*

For a second consecutive year and the fourth time in five years, a CIRAS activity has gained national recognition.

“Prototype Design and Development of the MCE 2000™,” a project completed by the CIRAS Engineering Team for CombiSep, Inc., has been selected by the National Association of Management and Technical Assistance Centers (NAMTAC) as a 2002 Outstanding Project of the Year in the technical assistance category.

CombiSep is a start-up company that manufactures analytical chemistry instrumentation. “Because of our partnership with CIRAS,” notes President and CEO Shelley Coldiron, “we were able to bring the concept through a prototype stage and then to market quickly and efficiently.” The MCE 2000™ is a multiplexed, absorbance-based capillary electrophoresis instrument used for conducting chemical compounds analysis and is based on technology developed by Dr. Ed Yeung of the ISU chemistry department.

Essential contributors to the project included the Iowa Manufacturing Extension Partnership (IMEP), the Center for Advanced Technology Development (CATD), the Iowa Companies Assistance Program (ICAP), ISU's College of Engineering and the Department of Aerospace Engineering and Engineering Mechanics, the Institute for Physical Research and Technology (IPRT), and the Department of Energy's Ames Laboratory machine, electronics, and sheet metal shops.

CIRAS received the award in October 2002 at the NAMTAC annual conference in Asheville, North Carolina.

NAMTAC is a not-for-profit association that provides information and a forum for members to enhance the performance of organizations. The organization prides itself on being unique in its diverse membership of assistance and service providers that strive to enhance enterprise competitiveness and community wealth.

It identifies outstanding efforts in assisting members' clients to become more globally competitive and viable in their fields of expertise or more capable of delivering services to the public sector. For more information about NAMTAC, visit their Web site at [www.namtac.org](http://www.namtac.org).

## IIOF symposium

Continued from page 1

market development, and supply chain management issues.

The symposium also provided a forum for Don Johnson, industry chair of the IIOF steering committee, to present the Iowa vision and roadmap. Created from the input of eight regional focus groups in Iowa during the spring and summer of 2002, the roadmap serves as a directional target for developing the bioeconomy of the future. Among its many goals, it states that by 2020 Iowa will increase production of biobased materials by a factor of 20 and will produce 30% of the industrial chemicals and liquid motor fuels coming from biomass. According to Euken, IIOF will concentrate on sharing the vision and roadmap more extensively in the upcoming months as well as analyze and identify business opportunities for Iowa investors and communities.

For information on IIOF, visit the Web site at [www.ciras.iastate.edu/IIOF/](http://www.ciras.iastate.edu/IIOF/) or contact Tim Sullivan at 515-727-0656; [sullytt@ciras.iastate.edu](mailto:sullytt@ciras.iastate.edu).

## Roberts earns P.E. license



Congratulations to John Roberts, who successfully completed requirements for his P.E. (Professional Engineers) license. Roberts has worked at CIRAS for six years. Prior to receiving his degree in mechanical engineering in 1996, he worked as a journeyman for Iowa Mechanical Corporation in Des Moines. His work experience includes hands-on knowledge in metal joining processes, blueprint interpretation, and job specifications requirements. Roberts' CIRAS expertise is in the areas of finite element analysis, product design, and product testing. He also coordinates the student-assisted projects.

## Spring courses

Continued from page 4

- **Cryptography.** *Instructor: Dr. Cliff Bergman.* This graduate-level course will cover basic concepts in secure communication, DES and IDEA, public-key cryptosystems, elliptic curves, hash algorithms, digital signatures, and social and political implications.

## Mechanical Engineering

- **Mechanics of Machining and Finishing Processes.** *Instructor: Dr. Abhijit Chandra.* This course will cover the mechanics of material removal for ductile materials, including shear zone theory, oblique cutting, and heat transfer in machining, milling, and grinding. This course will also examine the mechanics of material removal for brittle materials, including optimal selection and design of cutting parameters and control of machining processes.
- **Advanced Machine Design.** *Instructor: Dr. Jess Comer.* The focus of this graduate-level course is on metal fatigue. Essential for engineers who deal with fatigue-related problems, this course will help them develop an overall strategy to integrate life-prediction methods into development, design, test, in-service, and maintenance programs. Coverage is extensive, enough to assist in making decisions on determination of in-service loads, development of material databases, selection of software packages, design of testing programs, and integration of in-service inspections.

## Statistics

- **Applied Statistics for Industry.** *Instructor: Dr. W. Robert Stephenson.* This course is second in a series where EDE is partnering with ISU's Department of Statistics. Designed for industry, this course will cover statistical design and analysis of industrial experiments, including concepts of control, randomization, and replication. Simple and multiple regression, factorial and fractional factorial experiments, reliability, and analysis of lifetime data will be covered.

There are several courses available in a pre-produced format this spring. The faculty member will support each of these courses, and students will have regular interaction.

- **Finite Element Fundamentals with Applications.** *Instructor: Dr. Vinay Dayal.* Developed for practicing engineers who want to learn more about the appropriate use, implementation and evaluation of finite element analysis, this course will provide a foundation on which engineers can correctly build practical knowledge of this powerful analytical method.

- **Fundamentals of Nondestructive Evaluation.** *Instructor: Dr. Joseph Gray.* This course will cover the basic physics of ultrasonic, radiographic, and electromagnetic NDE measurements as well as the principles and uses of other quantitative techniques in nondestructive evaluation.
- **Crop Harvesting Dynamics.** *Instructor: Dr. Graeme Quick.* This course will feature subject matter experts from across the agriculture industry and covers physical principles behind the harvesting and handling of all types of crops: grains and foods, fuels, biomass and fibers, fragrances and fertilizers.
- **Advanced Computer Networking.** *Instructor: Dr. Doug Jacobson.* This course will provide students with a detailed examination of networking standards, protocols, and their implementation. This networking course is one of the courses that is part of the Information Assurance Graduate Certificate mentioned earlier.

*For more information on these courses and other additional offerings or to register, check the EDE Web site at [www.ede.iastate.edu](http://www.ede.iastate.edu) or call 800-854-1675.*

## PRO-Net and CCR

Continued from page 5

and Historically Underutilized Business Zone (HUBZone) empowerment contracting programs, as well as businesses that claim the small disadvantaged business status. Additionally, all future PRO-Net profile updates will be made to a company's CCR record.

In order to register with CCR, a firm must have a DUNS number. If your firm does not have a DUNS number, contact Dun & Bradstreet, Inc., at 800-333-0505 to obtain your free nine-digit identification number.

*For information and assistance on PRO-Net and CCR, contact Kathy Bryan at 800-458-4465; [kbryan@ciras.iastate.edu](mailto:kbryan@ciras.iastate.edu).*

## Beware of scam

CIRAS has been advised that fraudulent letters have been sent to contractors and potential contractors purporting to be from a government agency and asking that confidential information be submitted to verify Department of Defense Central Contractor Registration (CCR).

DO NOT complete the requested CCR worksheet attached to the letter. DO NOT release any information to the fax number cited. To register with CCR, contractors should go directly through the CCR Web site and never through a third party. There is no requirement to send information directly to any federal agency.

## Grants critical to CIRAS services *By Ron Cox, CIRAS*

CIRAS explores grants and other external funding opportunities, like contracts and user fees, as a way to supplement its finances. This type of funding, not originating from the state budget, is referred to as soft money. Diversifying the CIRAS funding base provides financial stability and allows staff a means to expand program offerings to industry.

Government agencies rarely pay “full price” for the services they seek through grants. The level of financial commitment that the grant awardee must provide to support the grant activity is referred to as match. This match might be cash from the CIRAS

budget or “in-kind” support, which includes items like overhead charges. The match on existing CIRAS grants varies from as little as no match to as much as three dollars for every dollar of federal funds. Because of these match requirements, the ability to obtain grants is reduced as a center’s base budget is reduced.

CIRAS has successfully amplified its budget by leveraging its base Extension budget. This past year CIRAS generated \$1.23 in soft dollars for every \$1.00 of state money. Funds were used to expand existing programs, develop new programming, and offer industry-wide services. Grant and

user-fee monies currently fund seven professional CIRAS and EDE staff and approximately 25 students.

At present, CIRAS has grants from five federal agencies: U.S. Department of Agriculture, Department of Health and Human Services, Economic Development Administration, Department of Energy, and the Defense Logistics Agency. Four in-state entities—the Iowa Department of Economic Development, the Iowa Department of Natural Resources, the Iowa Manufacturing Extension Partnership, and the Iowa Energy Center—also provide resources for CIRAS activities.

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## USDA and ISU partner on biobased products *By Steve Devlin, CIRAS*

The hydrocarbon economy has served the developed countries of the world well, providing abundant products, fuels, energy, and materials at a reasonable cost. However, many are questioning the sustainability of the hydrocarbon economy. Potential problems for the petroleum economy include interrupted supply, rising prices, environmental impacts of extraction and use, and increased demand for industrial and consumer products, fuels, and materials.

Biorenewable resources are a strategic option to meet the growing need for industrial building blocks and energy. Developing biobased industries can help the U.S. maintain a leadership position in science and technology and a high standard of living. The 21st century will see many petroleum-derived products supplemented with less expensive, better-performing biobased products made from renewable materials grown in farm fields and forests. The opportunity for the U.S. is clear. However, accelerating the growth of new biobased industries will require vision, integrated stakeholders, coordinated research, and investment in new approaches and new policies.

Section 9002 of Title IX of the 2002 Farm Bill has established a nationwide preferred procurement program for biobased products to be used by federal agencies. Several executive orders and other legislative actions currently require federal agencies to identify and procure biobased products as a way to promote the development of new products.

To help implement the preferred procurement provision in the Farm Bill, CIRAS has entered into a cooperative agreement with the Office of Energy Policy and New Uses—part of USDA’s Office of the Chief Economist—to implement a certification, labeling, and outreach program that will identify, qualify, and record biobased products that meet federal procurement guidelines.

During the two-year program, CIRAS will partner with federal officials, manufacturers, producer groups, private

contractors, and university researchers to establish computer-based management systems for long-term program operation. Partners will work to (1) identify key system requirements and their program functionality, (2) coordinate and leverage activities with similar initiatives, and (3) identify necessary resources and mobilize these resources to address pressing program needs.

The Web-based management information system, audit system, and research testing, conducted as part of this effort, will enable federal agencies to more easily identify and procure quality biobased products.

Companies that wish to have their biobased products qualify for purchase under the preferred procurement program will need to have the product evaluated for (1) biobased content, (2) life cycle costs, and (3) environmental effect. Program Manager Steve Devlin expects to have the systems in place and ready to accept products for certification by fall of 2003.

The goal of the USDA Biobased Product Certification program is to promote the replacement of petroleum-derived products with biobased alternatives made from renewable materials. The program will serve to strengthen and enhance ongoing research and development in the biobased products industry. Furthermore, by spreading the word to manufacturers and federal procurement offices, it aims to expand the volume of biobased products and potential markets. This, in turn, can lead to enhanced national security, environmental improvements, and a revitalized rural America.

*For additional information on the USDA Biobased Product Certification program, contact Ronald Cox at 515-294-9592; [rcox@ciras.iastate.edu](mailto:rcox@ciras.iastate.edu), or Steven Devlin at 515-294-5416; [sdevlin@ciras.iastate.edu](mailto:sdevlin@ciras.iastate.edu). You may also visit the Web site at [www.ciras.iastate.edu](http://www.ciras.iastate.edu).*



## ISU students will graduate with CIRAS work experience



**Front row (left to right):** Nick Burns, industrial engineering; Carissa A. Roenfeldt, exercise and sport management; Brennan Fehr, electrical engineering  
**Back row (left to right):** Travis L. Johnson, mechanical engineering; Michael Larson, mechanical engineering; Matthew Canny, computer engineering

### Niche market

Continued from page 3

"We also get an outside pair of eyes to evaluate our system, something we might not have been able to do as effectively," she adds.

Another positive result of this arrangement is that other projects, such as improving productivity, can be conducted over time, allowing for more effective evaluation and implementation. The Veridian project took place in cooperation with the Iowa Manufacturing Extension Partnership (IMEP) and local account manager Woody Grabenbauer.

Will this arrangement last forever? Says McGinnis, "I don't think we intend to do that, but for now, this is an effective way to take care of our auditing requirements plus maintain contact with an outside resource that can add value to our operations."

*For more information on customer satisfaction and manufacturing operations, contact Merle Pochop at 712-274-0048; [mpochop@ciras.iastate.edu](mailto:mpochop@ciras.iastate.edu).*

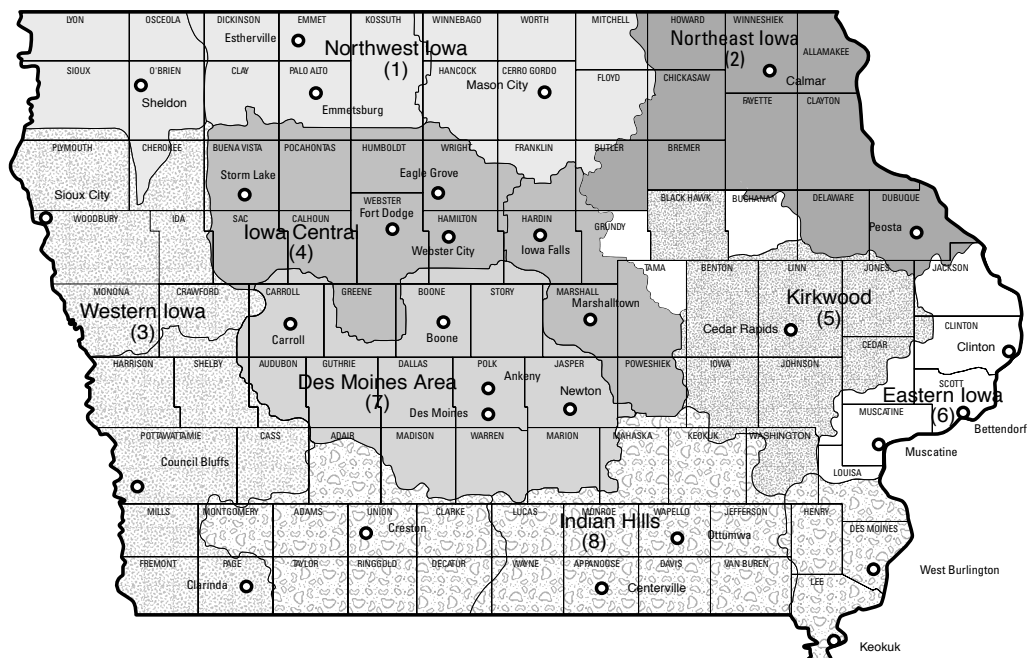
## IMEP is link to CIRAS resources

The Iowa Manufacturing Extension Partnership (IMEP) is a statewide network of Regent university, community college, state, and professional organization resources that provides technical and business assistance to small- and mid-sized manufacturers.

The eight community college-based account managers act as the IMEP's primary point of contact with Iowa manufacturers. Account managers impact their client's bottom line by identifying opportunities for improvement, proposing solutions, and providing links to resources like CIRAS.

To bring the power of CIRAS and the many other partners within the IMEP to your company, contact your local account manager.

### Iowa Manufacturing Extension Partnership Account Manager Territories



- |  |  |  |  |
|--|--|--|--|
| <b>1</b> Northwest Iowa<br>Woody Grabenbauer<br>712-324-5061<br><a href="mailto:woody@imep.org">woody@imep.org</a>                   | <b>3</b> Western Iowa<br>Bob Coacher<br>800-352-4649 x2214<br><a href="mailto:rcoacher@imep.org">rcoacher@imep.org</a> | <b>5</b> Kirkwood<br>Ken Nelson<br>319-398-5671<br><a href="mailto:knelson@imep.org">knelson@imep.org</a>          | <b>7</b> Des Moines Area<br>Larry Dalton<br>515-964-3697<br><a href="mailto:ldalton@imep.org">ldalton@imep.org</a> |
| <b>2</b> Northeast Iowa<br>Richard Kansteiner<br>563-562-3263 x308<br><a href="mailto:rkansteiner@imep.org">rkansteiner@imep.org</a> | <b>4</b> Iowa Central<br>Brenda Martin<br>515-576-0099 x2324<br><a href="mailto:bmartin@imep.org">bmartin@imep.org</a> | <b>6</b> Eastern Iowa<br>Ilene Deckert<br>563-336-3317<br><a href="mailto:ideckert@imep.org">ideckert@imep.org</a> | <b>8</b> Indian Hills<br>Vicki Baum<br>641-683-5293<br><a href="mailto:vbaum@imep.org">vbaum@imep.org</a>          |

Iowa MEP Central Office 515-289-0600



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Check out pages 6 and 7 for a historical CIRAS timeline.

## Web site is one-stop shop

[www.ciras.iastate.edu](http://www.ciras.iastate.edu)

- Looking for ways to improve your company's product line or test a product for performance and reliability?
- Or do you need to consult with an expert on making changes to the physical layout of your facility?
- Is finite element analysis something your company can use to predict materials behavior as a way to speed up production?

To find out more about these issues, log on to [www.ciras.iastate.edu](http://www.ciras.iastate.edu). Click on 'Engineering,' and you will find a host of resources at your fingertips, including a quick and easy way to contact CIRAS specialists with your particular manufacturing concerns and problems.

A comprehensive Web site is just one more mechanism that CIRAS has generated to keep Iowa manufacturers informed and in touch with the latest advances.



## Focus: Engineering

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